DECEMBER 6, 1961

GAS IN INDUSTRY

Supplement to the "GAS JOURNAL"

Vol. 4 No. 43

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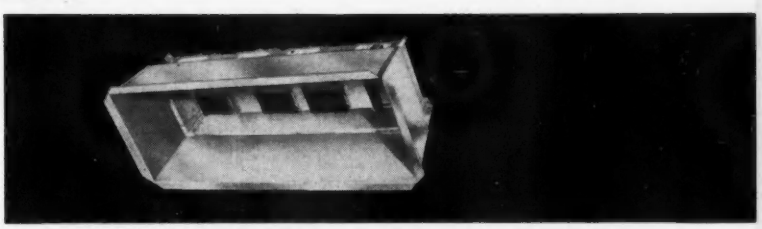

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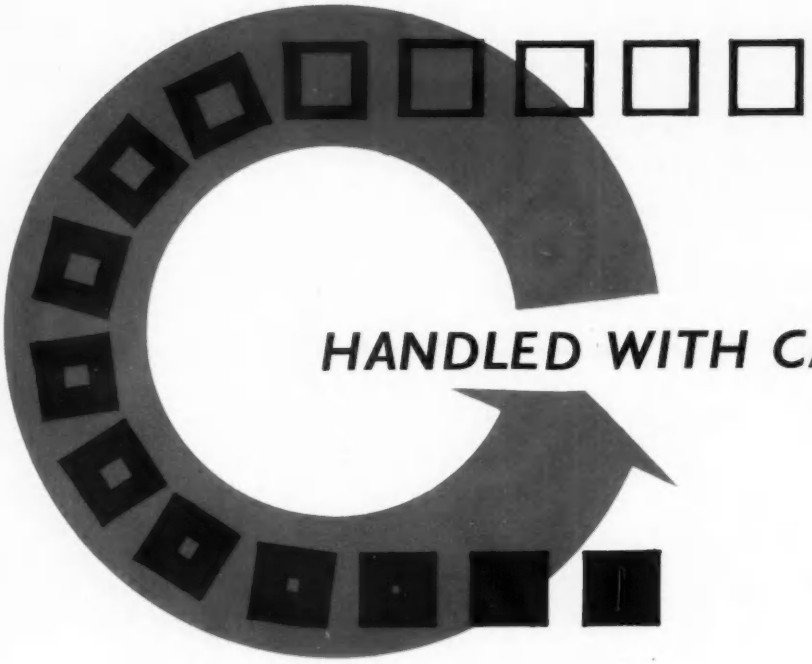

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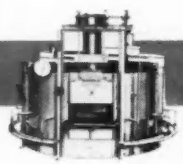

THE INCANDESCENT HEAT CO. LTD.,
SMETHWICK, ENGLAND.

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FEATURES

TOWN GAS IN THE MANUFACTURE OF TUBES

By A. C. Jennings and W. C. Waite.

HUGE GAS-FIRED FURNACE FOR WHESSOE

GAS MAKES LOCO SPRINGS AT CREWE

GAS HELPS THE MODERN ARCHITECT

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Editorial

Changing the face of Britain

YET another industry which gas can assist is the building industry, though its help is only felt indirectly. Nevertheless, it does contribute to the availability of modern materials for the architect to use in his designs.

This has never been more true than it is today. The newer buildings, rising further and further into the sky above our cities, in breaking away from the building traditions that preceded them, require special and specialised types of materials. They may seem highly unorthodox in their design; the manufacture of materials needed for them may require gas.

Undoubtedly the use of colour in new buildings is a trend which is here to stay, judging from the extensive use to which it is put in cladding structures which, without this relief and decoration, might be a little grim. Coloured enamel panels are today used in the construction of curtain walls which are an integral part of the design, but which remain independent of the main structure of the tall, multi-storey building now so familiar in this country.

The utmost precision is needed in the manufacture of these panels; the choice of materials is highly important, as also is the choice of finish to be applied. The greatest care must be taken to ensure that the thickness of the enamel coat is completely even, and that it is free from flaws. The effect of the English climate and the acrid atmosphere of the large city, is likely to find any weak spot, and corrosion will occur, and spread throughout the surface.

What is all this to do with gas? It is used in the manufacture of the enamel and in the enamelling process. The sprayed sheets are first dried by gas-heated hot air, and are then stoved in a gas-fired furnace.

The article which we are publishing this month gives an account of this particular use of gas in the manufacture of the steel sheets used in many of the modern buildings now appearing in London and several other cities in the U.K. These panels set off the severe structures which seem to typify the architecture of this age; but the colour of facing panels is of the utmost importance.

The dimensions of the individual sheet must be adhered to with precision, and the finished surface must be perfectly flat; if these standards are not rigidly observed, the curtain wall may cease to be waterproof.

These outer enamelled steel panels, which are virtually hung onto the structure and the function of which is to keep out the weather, may be only 1 to 2 in. thick, but are extremely strong, as indeed they have to be if they are to withstand wear for the length of life of the main structure.

Here is another example of the way in which gas can be of service to an essential, but perhaps little-recognised, industry. It is also an example of the way in which gas can be integrated into a manufacturing process so that it becomes part of a continuous production unit.

In this particular application, gas is indeed changing the face of the country, or at least the face of its buildings.

TOWN GAS IN THE MANUFACTURE OF TUBES

The smallest tube ever made, superimposed across a single human hair. Tubes of this diameter are in commercial production by Accles & Pollock Ltd.

IN the Midlands the tube industry could be said to have started from about the time in 1792 when William Murdoch produced and used coal gas for lighting purposes. At about this time there was a slump in the manufacture of gun barrels, due to the Treaty of Amiens, and James and John Russell of Edward Elwell's gun factory thought of modifying gun barrels by the inclusion of socket and spigot ends, to form continuous pipes for the distribution of gas. They were successful in their business and this is the reason why gas tubing is often referred to as gas barrel.

VERY SCIENTIFIC

Since that time the manufacturing techniques involved in the production of tubing have become very scientific and to-day there is a range of tubes in all sorts of different materials produced to extremely close tolerances as to size and physical specification.

In general, tubes are used for: (*a*) Carrying fluids, and in this category there are water pipes, oil and petrol pipes, gas pipes, sewage and rain-water pipes, beer pipes, steam pipes and flue pipes; (*b*) Constructional purposes, because weight for weight a tubular section is stronger than any other, and is also easy to manipulate; (*c*) The protection of electric cable, and this has mostly been in the form of lightweight conduit tubing.

Tubes today are manufactured in a very wide variety of materials, including iron and steel for gas and water mains, scaffolding, copper and brass for car radiators, and heat exchange components, aluminium and lead for the chemical industries, glass tubes for breweries and food industries, as well as for laboratories, glazed fireclay for sewers and G.P.O. ducts, plastics for hoses and other flexible pipes.

The one thing that all these materials have in common is that somewhere in the process of tube manufacture heat is required.

The amount of gas sold in the year ended March 31, 1961, to tube manufacturers by the West Midlands Gas Board amounted to approximately 13 mill. therms. This represents approximately 3.8% of the Board's total gas sales and 6.9% of the Board's sales to industry.

Steel tubes vary greatly in size;

By A. C. JENNINGS, M.I.GAS E., M.INST.F., A.M.B.I.M.,

AREA INDUSTRIAL GAS OFFICER,

and W. C. WAITE, ASSOC.INST.GAS E.,

INDUSTRIAL GAS OFFICER, WALSALL DIVISION, WEST MIDLANDS GAS BOARD

among the largest are perhaps the funnels for the liner *Queen Mary*, or the lining of the Mersey Tunnel, while in the smaller range rank needles for hypodermic syringes, or even smaller ones about the size of a vein in a butterfly's wing.

One firm at which a very wide variety of steel tubes is manufactured is Accles & Pollock Ltd., which has two large works in Oldbury, the Paddock works and the Broadwell works.

LARGE STOCK

This company, a constituent member of the Tube Investments Group, has a reputation as the firm which manufactures the most comprehensive range of precision steel tubes in the world, and can supply from stock 2,000 different sections in the range. In addition to manufacturing tube, it is one of the largest producers of tubular furniture in the country and has a firm reputation in the field of sports equipment.

Tubes which are weldless are manufactured by means of either: (*a*) An extrusion process, in which a hot billet is forced through an annular die; (*b*) Drawing, that is successively reducing the diameter and wall thickness of a steel hollow by drawing it through a number of dies; or (*c*) By a process of hot rolling carried out in a pilger mill.

SEAMLESS TUBES

The resulting tubes are seamless with a good grain flow. These three initial processes are carried out by other companies in the Tube Investments Group and are supplied to Accles & Pollock for manipulation and manufacture to close specification.

During processing the tubes tend to become work-hardened or strained, and most of the heat processes in the works of Accles & Pollock Ltd., are concerned with annealing the tubes in the various stages of manufacture with a view to eliminating the strains and softening the material ready for the next process.

In 1956, the Gas Board was able to discuss the possibility of converting furnace equipment at the Broadwell works of Accles & Pollock from producer gas to town gas firing. A range of furnaces using cold clean producer gas generated from anthracite required approximately 45 cwt. of anthracite per hour to produce the required 340,000 cu.ft. of producer gas, having a calorific value of approximately 140 B.t.u. per cu.ft. gross.

FURNACE RANGE

This range of furnaces comprised the following:

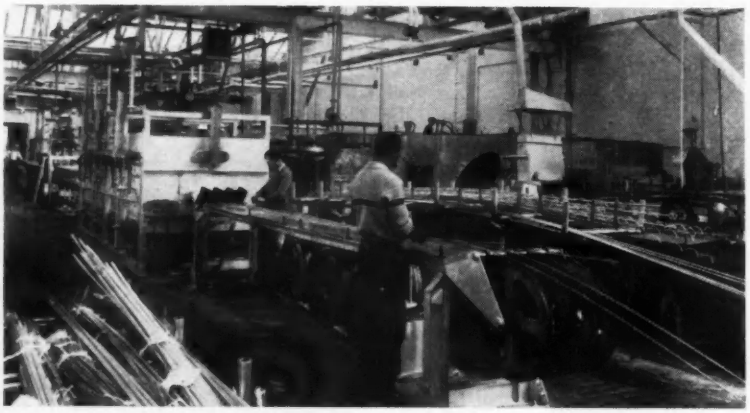
3 batch annealing furnaces, each having a hearth area 36 ft. long by 8 ft. wide and a height of 4 ft. from the hearth to the crown of the arch. These furnaces are of the regenerative type and equipped with mechanical chargers. The designed range of temperatures was from 680°C. for annealing, to 950°C. for normalising, and the producer gas consumption for each furnace varied from 12,000 to 20,000 cu.ft. per hour.

5 batch annealing furnaces, each having a hearth 25 ft. long by 7 ft. wide and a height of 4 ft. from the hearth to the crown of the arch. These furnaces are hand-charged and have a producer gas consumption of between 10,000 to 15,000 cu.ft. per hour.

DISCHARGE STATION

Discharge station of the rotating hearth billet heating furnace at Prothero Steel Tube Company.

The new atmosphere controlled roller hearth annealing furnace by Birlec Ltd. at Talbot Stead Tube Company.



Drever continuous annealing furnaces for stainless steel tubing at Accles & Pollock Ltd.

1 blueing furnace with a working chamber temperature of 500°C. and an estimated producer gas consumption of 10,000 cu.ft. per hour.
11 tube end tagging furnaces, each using approximately 4,000 cu.ft. of producer gas per hour.
1 small heat treatment furnace, using approximately 2,500 cu.ft. of producer gas per hour.
1 No. 1 Potterton Rex central heating boiler, using 1,500 cu.ft. of producer gas per hour.
1 Ballard conveyor drying oven of the camel back type, using 4,500 to 5,000 cu.ft. of producer gas per hour.

The Company agreed to allow the Board to convert one of the large batch annealing furnaces to gas firing to obtain comparative results as a test case. Tests were carried out on producer gas for a period of one week, following which the furnace, which is fired by 94 post-aerated burners, was converted to town gas.

PRE-HEATED AIR

The burners are supplied with preheated air from the regenerators beneath the furnace and over-fire the arch of the work chamber. The burners were converted to operate on town gas at a pressure of 2 in. w.g. by restricting the gas input by means of orifice plates in each burner.

The furnace is divided into three zones and the temperature in each zone separately recorded. During the period of the test the furnace was hand-controlled to maintain a given temperature curve. From the figures obtained it was estimated that to replace the 340,000 cu.ft. of producer gas approximately 40,000 cu.ft. of town gas would be required per hour. In other words, less than half the total thermal input is required to do the same job as when anthracite gas producers are used.

The chief engineer of Accles & Pollock gave instructions for the rest of the furnaces to be converted. With this conversion the annual consumption of town gas on these two works was increased to 312 mill. cu.ft. per annum.

MAIN LAID

The customer also had in use hot raw producer gas plant having a capacity equivalent to 30,000 cu.ft. per hour of town gas. In consequence the installation at Accles & Pollock's Broadwell works was designed to deal with 100,000 cu.ft. of town gas per hour. This installation necessitated the laying of 300 yards of main from an adjacent high pressure system, together with a 12-in. high to low Emco governor, a 12-in. by 36-in. Holmes Connersville meter, and two boosters each capable of passing 100,000 cu.ft. of gas per hour, with a pressure uplift of 15 in. w.g.

During the war years a 12-in. main had been laid from the existing meter position to the mill shop housing the annealing furnaces, a distance of 400 yards, and it was decided to use this main under boosted conditions of supply. The pressure loss was approximately 5 in. w.g. on full load.

The whole of the installation was carried out using bypasses without interfering with the output of the factory in any way. Boosters are arranged in duplicate for maintenance purposes.

The furnace burners were modified for town gas and installed during the 24-hour shut-down period at the rate of one furnace a week. The burners are so designed that they may be changed quite quickly or cleaned without interfering with the operation of the furnace.

It was found that the existing burners could be used without modification on tagging furnaces, other than controlling gas and air pressures.

The central heating boiler was fitted with new burners, governor and flame failure equipment, while the heat treatment furnace required new burner injectors and the blueing furnace merely required adjustment to pressures and dampers.

The whole of the plant was completely converted by August, 1958, without any interference in production.

As a result of its experience with town gas, the company in 1959 decided to convert the raw producer gas-fired furnaces to town gas. This range of furnaces comprised the following:

4 batch-type annealing furnaces, having working chambers 20 ft. long by 5 ft. wide and a height of 2 ft. from hearth to crown, and
1 furnace 30 ft. long by 5 ft. wide and 2 ft. high from hearth to crown.

SIDE-FIRED

All these furnaces are side-fired with recuperators beneath the hearth and are ventilated through the hearth to the flue stack. It was decided to convert these furnaces by underfiring the arch with post-aerated burners. Air for combustion was supplied by means of fans through the existing recuperators, and the travel of the flue gases remain unchanged.

The burner system is arranged for control in two separate zones to ensure even conditions throughout the furnace. These furnaces use gas at 3 in. w.g. pressure and are complete

with all necessary safety controls to ensure that the correct lighting sequence is always followed.

Three of the furnaces are employed in annealing and normalising of stainless steel tubes and have to operate to 1,100°C. The others are mainly used for the annealing of mild steel tubes at approximately 680°C.

The Paddock works produces a greater variety of tubes than at Broadwell works, and the town gas applications are more varied in character. For annealing many of the smaller tubes a tubular muffle type bright annealing furnace is used for temperatures up to 1,100°C. This furnace has an output of approximately 320 lb. of stainless steel tube per hour.

ABOVE AND BELOW

The four muffle tubes, manufactured in nickel chrome alloy, and each 18 ft. long, are placed in the combustion chamber of the furnace horizontally and parallel to each other. The furnace is fired by means of nozzle mixing burners situated in the side walls, so as to fire above and below the refractory hearth which supports the muffle tubes.

The furnace is fired and controlled in three zones and the air for combustion is supplied by means of a fan at 28 in. w.g. through recuperator tubes placed in the flueways of the furnace. The means for conveying the work for annealing through the furnace muffles is by means of pull-through wires, to which the tubes are attached. The pull-through wires are fed from reels at the loading end of the furnace and drawn on to swifts at the discharge end of the unit.

In this case the atmosphere within the muffles is provided by bottled hydrogen. The gas consumption of this furnace is 1,000 cu.ft. per hour. Recently the installation has been duplicated.

In that section of the factory manufacturing tubular furniture, gas is used for brazing and paint drying. The tubes that form the furniture sections are precision bent on jigs and brazed in a semi-automatic plant. Brazing takes approximately 45 seconds and there is a cooling period of 30 seconds. The equipment is under automatic time control.

After thorough cleaning the furniture is painted, using the electro-static method, by which the paint is attracted to the frames when sprayed, and from the spray booth the furniture is conveyed through a gas-fired infrared drying tunnel. This tunnel is 50 ft. long and is built-up of 136 panel sections, arranged in 4 rows at each side of the tunnel. The gas consumption is approximately 5,000 cu.ft. per hour. The complete spraying and drying operation takes no more than 15 minutes.

MORE CONVENTIONAL

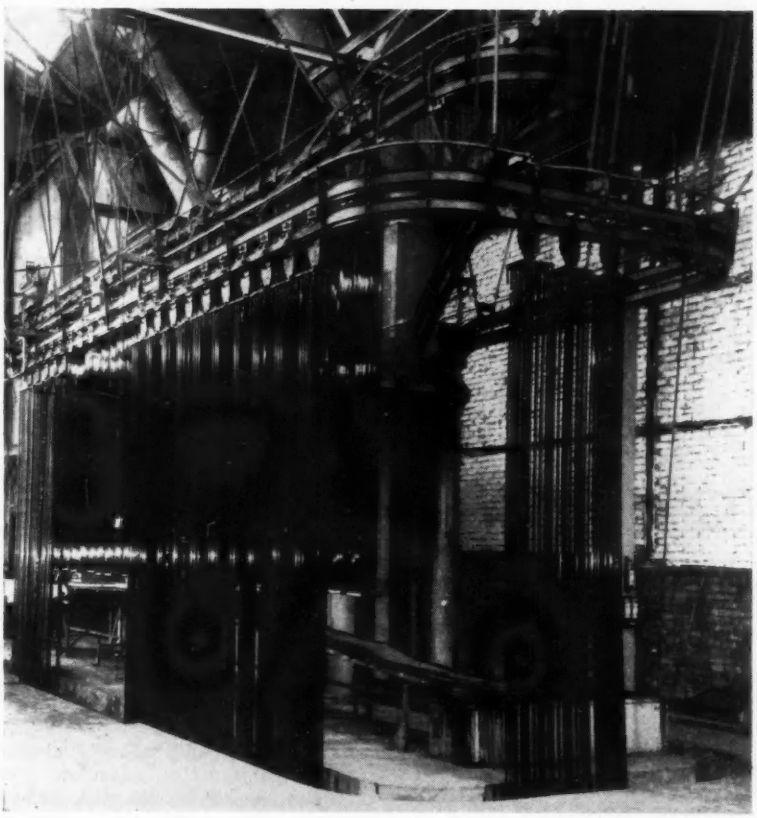
For certain articles and colours the more conventional camel-back air recirculation oven is used, in which drying takes place at temperatures ranging from 250 to 270°F. Double-cased batch paint drying ovens are also used for small components and special jobs.

At Paddock works there were a number of direct coal-fired annealing furnaces. In 1958, consideration was given to a scheme to convert these to gas. At that time the conversion involved almost a complete re-build, and because of the economic conditions prevailing, the project was left in abeyance. By 1960, however, the Board was asked to see what could be done about converting the furnaces to gas by a simpler method. The furnaces concerned comprised two units each with a hearth dimension 20 ft. long by 5 ft. wide, with a height of 2 ft. 6 in. to the crown of the arch.

LONG FLAMES

The coal combustion chambers were situated at the rear of the furnace and the long flames from these were taken beneath hearth level into the furnace chamber through ports at the front, then pulled to the back wall of the furnace over the stock and evacuated through a front flue by means of a false arch within the furnace.

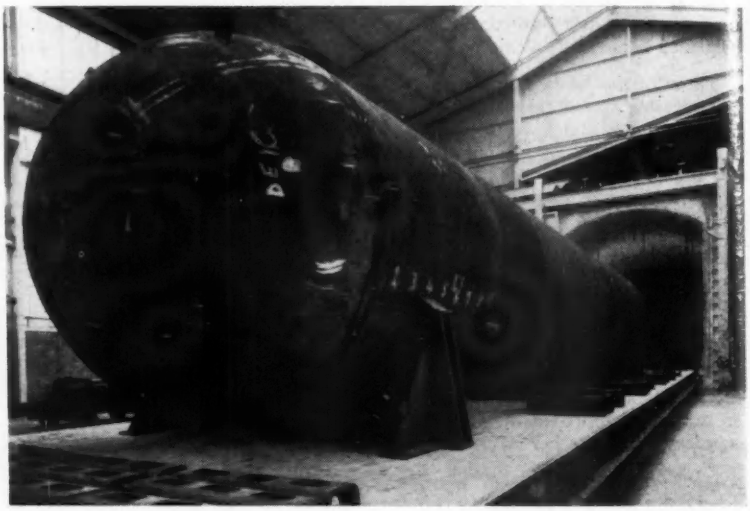
It was decided to replace the coal fire by means of direct post-aerated gas burners, firing directly under the hearth as before. It was found that



Layout for enamel dipping and drying conduit tubes at Barton Conduits Ltd.

Continued on page 268

Huge gas-fired furnace for Whessoe



A TOWN gas-fired bogie hearth stress relieving furnace has recently been commissioned in the Darlington works of Whessoe Ltd. It is claimed to be the largest of its type in the U.K., and probably in Europe.

The furnace, supplied by Dowson & Mason Ltd., is designed to stress relieve welded fabrications at temperatures between 600-650° C. and perform other heat treatment operations up to a maximum of 1150° C.

DIMENSIONS

The internal dimensions are 18 ft. wide, 21 ft. 9 in. high from the top of the bogie to the crown of the furnace arch, and 85 ft. long between the door faces.

To prevent gases from escaping from the top and upper sides of the furnace doors, sandseal troughs are arranged across the top of the roof at the door faces; dipper castings on top of the doors complete the seals. At the sides of the door openings, there are asbestos insulation sealing pads, and both doors are clamped closed by hydraulic cylinders.

SANDTROUGHS

Hinged sandtroughs at each end are raised by cams to make seals at the bottom of the doors. This allows the bottom of the bogie to be open from end to end, to keep the wheels and axle boxes cool.

The bogie is moved by a wire cable haulage gear, driven by an electric motor. To reduce tractive effort, roller bearing axle boxes are used and the wheels are disposed alternately in four rows to ensure the maximum charged weight of 200 tons is evenly distributed.

The walls, roof, and doors are lined with insulating refractory, and taper wedge bricks used at intervals along the sides and in the doors ensure solidarity. These are held to the casing by vertical rods passing through holes in the bricks.

The town gas is supplied to multiple horizontal and vertical burners located in the base of the side walls. Nozzle mixing is used for the horizontal burners and those firing vertically give luminous flames. Air is provided by an electrically driven fan.

In each side wall are 22 flues, rising from hearth level to common ducts along the roof, connected to two damper-controlled flue stacks, which exhaust the spent gases above the building roof.

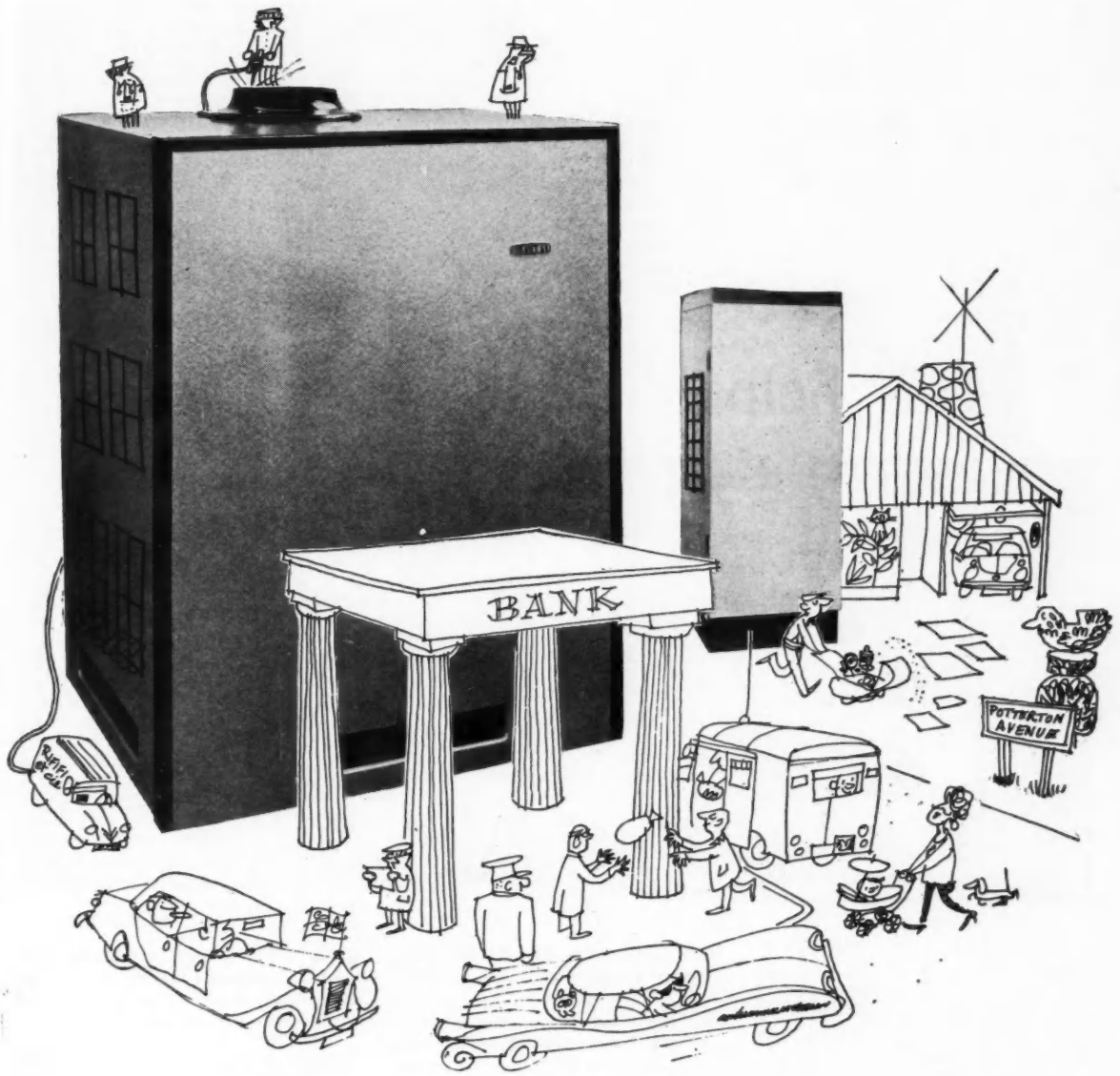
Temperatures are automatically controlled in six zones, each having a Kent pneumatically-operated fully-proportioning recording controller. There are three 6-point strip chart recorders connected to thermocouples attached to the charge and in the furnace atmosphere. A pressure control instrument is provided and gas consumption is recorded by a flowmeter.

GAS MAKES LOCO SPRINGS AT CREWE

AT the British Transport Commission's railway works, Crewe, a continuous furnace line has been installed by the Incandescent Heat Co., Ltd., and their associates Controlled Heat & Air, Ltd., for the forming, hardening, and tempering of heavy locomotive leaf springs. The plates are conveyed through the hardening furnace on cast nickel-chromium chains.

The furnace is under- and over-fired by fan-blast gas burners to ensure rapid and uniform heating. The leaf springs are discharged singly from the furnace, transferred to the cambering press which, when the forming operation is complete, automatically quenches the leaf at the correct hardening temperature.

The final tempering operation is performed in a Chal chain conveyor furnace, which is equipped with a separate heater battery and re-circulating fans to ensure close temperature control and uniformity throughout.



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And a Diplomat 100 (a domestic gas-fired Potterton) supplied by South Eastern Gas Board and installed by C. Fletcher, Sons & Company Limited, Kingston, heats and provides hot water at an 8-roomed bungalow in New Malden, Surrey.

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There are a hundred enamelled steel panels on this smaller side of the striking Empire House at Chiswick.

Gas helps the modern architect

WITH the shortage, and the price, of good building sites, more and more of London—and provincial centres—is going higher and higher in the air. With the accent on building high there is a demand for lightweight construction in the form of 'curtain walling.'

Twelve and 15-storey buildings are quite commonplace and the 34-storey Vickers London building is nearing completion. Apart from helping to warm the insides of many of these buildings Mr. Therm is playing a vital part in assisting one of the South Eastern Gas Board's best customers to manufacture enamelled steel panels to keep the weather out, says *Segas*, journal of the Board.

'CURTAIN WALLING'

Consider such new buildings as the *Daily Mirror* or the R.A.C. headquarters, and it will be realised that almost the entire outside walls are made up of glass and steel. This form of building, introduced widely over the last few years, embodies the so-called 'curtain walling' construction.

The basic skeleton structure is made either of steel or reinforced concrete pillars—vertically and horizontally—and each floor is laid with thick prefabricated reinforced concrete slabs. In this way the building is built from the inside, so to speak, and the outer walls have to be put on merely to keep out the weather—they form no part of the basic structure.

In many cases nowadays this outer wall is made of big glass windows and steel panels. Conventional brickwork or concrete is reasonably weatherproof but steel has to be protected from rain, snow and the chemical elements in the air.

The only successful method of doing this has been to coat the steel panels with vitreous porcelain enamel—and this is where Mr. Therm makes his contribution.

AFTER THE WAR

When this type of architecture began to be considered after the war the first firm to urge the use of steel panels was Stewart and Gray Ltd., of Tooting Junction, S.W.17.

This firm had been well-established in the manufacture of vitreous enamels and the enamelling of many kinds of goods, especially gas appliances, but they saw the opportunity of extending their business to vitreous enamelled steel panels for architectural use.

ESTABLISHED

The idea has now become firmly established and Stewart and Gray have supplied the steel panels to cover vast surface areas of many famous buildings—as well as scores of ordinary developments.

These include the *Daily Mirror* and R.A.C. buildings already mentioned; the new Manchester Ringway Airport terminal; the Vickers building on Millbank; Empire House, Chiswick; the big blocks of flats at Shieldfield, built by Newcastle Corporation; the new Piccadilly station, Manchester, and the tallest building in Britain, the C.W.S. and C.T.S. building in Manchester.

Stewart and Gray use a large amount of gas in their work—for drying the frits in enamel manufacture, for drying the panels after spraying

with enamel, for firing the panels after enamelling and for raising the steam used in the 'pickling' of the steel before enamelling.

These panels, which now make up practically all of the firm's production, are not just an ordinary enamelling job. As they have to be fitted exactly into the metal framework of the buildings, with the minimum tolerance to ensure weather-tightness, their manufacture amounts almost to precision engineering.

The basic steel panels, with boxed edges, are made in the firm's sheet metal works and are accurate to within a few thousandths of an inch—they vary in size up to 8 ft. by 4 ft. The steel used is of a very special type, particularly suitable for enamelling.

HIGH QUALITY

It is of the highest quality—if any other kind were used the enamelling might be impaired. They are then 'pickled' in various baths of chemicals to remove any surface impurities—these liquids are steam heated and the steam is raised by two controlled flame gas boilers which are in constant use right round the clock.

They are then given a first coat of enamel which provides a firmly fixed ground coat onto the steel. It is essential that these panels are absolutely dead flat and that the enamel coating is of a perfectly even thickness—it would not matter much if a railway station sign were slightly curved but it would be disastrous to appearance on a building wall.

The new R.A.C. headquarters building in Croydon is almost entirely steel and glass covered.

Both sides of the panel, in fact absolutely every part, must be covered with enamel, for if only the tiniest spot on a corner edge was uncovered the weather would get in and corrosion of the steel would result.

Then the panel, after drying, is hung vertically in a big gas oven and is fired for a 'programmed' period at temperatures up to 860° C. This oven has ribbed arches of hollow fire brick forming a closed circuit tube which is heated internally by gas.

When cooled the panels have another coat of enamel sprayed on, of the colour selected by the customer. This use of carefully chosen coloured enamel has done much to give life and beauty to our modern architecture.

The panels then pass slowly through a tunnel in which they are dried by gas warmed air—and back into the gas oven for firing.

SOLID SECTION

When cold they are taken away to another department where they are completed as a very solid section of wall. First they have a thin sheet of asbestos firmly cemented to the inside wall.

Then the panel is packed with the customer's chosen insulating material—it must be remembered that as well as keeping the weather out the panel must keep the heat in.

A layer of aluminium foil is laid on top to keep out any possible dampness, and a final fibre board sheet is secured to the steel panel.

Finally the edges of the panel are covered with adhesive damp-proof tape.

DECORATIVE SCREEN PANELS

Stewart and Gray Ltd. made these fine decorative screen panels for the main line platform at Paddington Station.

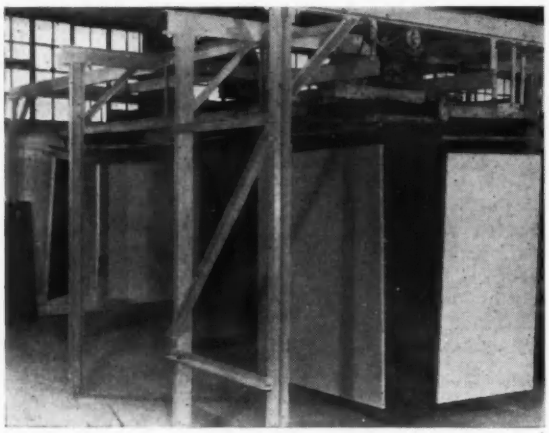
This completed wall panel is only from 1 in. to 2-in. thick and it is bedded on mastic material in the metal frame on the building and secured with suitable beading.

This is all that is required to make up the outer wall—but it is immensely strong, so you have no need to fear leaning against a 2-in. wall on the 50th floor of some skyscraper.

It is an interesting reflection on the durability of enamelled steel panels that when the *Daily Mirror* building had a disastrous fire when nearing completion not a single panel had to be renewed.

These coloured panels do not need any cleaning to keep their decorative appearance for the English weather sees to that all right.

Since these panels are intended, and usually guaranteed, to last as long as the normal life of a building it is most essential that the enamel must be exactly right in its composition to adhere perfectly to the steel.



Panels emerging from the gas warmed air tunnel after drying.

Here Stewart and Gray have a big advantage because their subsidiary company, Escol Products Ltd., is one of the biggest of Britain's manufacturers of enamel, so they are able to make a product exactly to their own stringent requirements.

LABORATORIES

They have their own testing laboratories where various complicated technical devices are used to check vital details. Probably the most important quality of the enamel made for steel panels is that its expansion rate must be the same as that of the steel, otherwise it would just shatter off when cooling and contracting.

The enamels being made are under constant expansion tests—small rods of enamel are tested for expansion through every 5° of temperature up to about 700°. Tests are also carried out with comparative colours, and even the glossiness of enamel can be calculated.

About 15 tons of enamel frit are produced each day—about 2 tons for the firm's own use and the rest is sold to other manufacturers in Great Britain and overseas.

WEIGHED OUT

Different enamels have different ingredients of different weights and every melt has its ingredients carefully weighed out by one of the laboratory chemists. They are melted together in a furnace, about one ton at a time, and when ready the molten enamel is run out into a tank of cold water.

As soon as it hits the water the melt shatters into tiny immensely hard crystal-like frits. These frits are passed through an ingenious gas-warmed air machine to dry off the water and they are then ready for use as enamel.

The gas consumption is about 175,000 therms per annum and the way production is chasing the rising demand this figure is likely to be increased.

A new works is being built at Huntingdon and gas is to be used there for the same processes as at Tooting Junction.

The Managing Director of the firm, Mr. N. F. Parker, has had experience in gas engineering and worked for many years with an important firm of gas engineering contractors—so he knows all about the capabilities of gas in industry.

He keeps very close relations with the Wandsworth Industrial Section of the Special Services Department.

NEW BULLETIN

A NEW bulletin (No. CHAL 14) has been issued by Controlled Heat and Air Ltd., Smethwick, Birmingham, entitled 'Industrial ovens and filtration equipment'.

The firm designs and manufactures industrial ovens covering the whole field of stoving, drying, and low temperature heat treatment up to a maximum of 450°C.

Infra-red oven brochure

Parkinson Cowan Industrial Products, Dolphin Works, Fitzalan Street, London, S.E.11, have issued an eight-page illustrated colour brochure that gives full details of lighting, operating and temperature settings for Parkinson Cowan gas-fired radiant heat panel ovens.

TOWN GAS AND TUBES

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by careful adjustment of the secondary air ports and flue dampers, combustion could be sufficiently retarded to obtain flames within the working chamber as with the coal furnace. It was found possible to increase the throughput by 40% because temperature recovery was more rapid.

The time in the pickling tanks was reduced because the atmosphere of the furnace was under better control when fired by gas and therefore produced less scale, and because the furnaces were more flexible they could be used for a greater range of treatments.

AT WEEK-END

The cost for each furnace was approximately £60, and the whole conversion was carried out during one week-end shut-down. Temperature control equipment has now been installed and the economies in use have decided the customer to convert all the remaining coal-fired furnaces to gas. Altogether there are nine of these hand-loaded furnaces and each will use approximately 3,000 cu.ft. per hour maximum gas consumption.

Such a load meant the installation of a new 10-in by 30-in. Connersville meter, with boosters, giving a gas availability of 65,000 cu.ft. per hour at a pressure of 15 in. w.g. above mains pressure. Pressure conditions within all parts of the factory have been quite satisfactory and there is considerable reserve for future development.

OTHER USES

Accles & Pollock also uses gas for special atmospheres in heat treatment, for the canteen, for hot tagging and pitch melting, hot water and central heating boilers within the range 100,000 B.t.u. to 750,000 B.t.u. per hour. Altogether the consumption of gas by Accles & Pollock has increased by over 400% during the last three years.

This article will be continued in another issue of *Gas in Industry*.